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THE RACOON.

[The Racoon.]

THE Racoon is a native of America, where it appears to have a wide range, being abundant in the northern division of that continent as high as the cold latitudes of the fur country, and being found in the southern division also; at least, if the animal described by Azara as a native of Paraguay, under the title of 'Agouarapopé,' be the same, as most naturalists regard it. Placed by Linnæus in the genus *Ursus* (under the tile of *Ursus Lotor*), the Racoon has been separated as the representative of a distinct genus, namely *Procyon* *, established by Storr, and adopted by modern naturalists. Like the Coati,† to which the Racoon is nearly related, this animal belongs to the Plantigrade section of the Carnivora, but though the soles of the feet are naked, it is only while at rest that they are fairly applied to the ground. While in motion the heel is raised, yet the gait of the Racoon is heavy and awkward; its limbs are short and stout, its back is arched, and the body is round, thick, and massive, with a marked fullness about the flanks adding to its breadth, and making the limbs seem shorter than they are in reality. Without suppleness or agility the Racoon exhibits a certain address in its actions, which harmonize with its cunning and prying physiognomy. The form and general expression of the head are decidedly fox-like, except that the ears are round and short, the eyes large, with circular pupils, and the muzzle abruptly acute, the nose extending beyond the jaws, but less so than in the Coatis, in which animals it is advanced in the form of an elongated movable snout. The tongue is soft, the teeth consist of six incisors in each jaw, and two straight compressed canines; there are three conical false molars on each side in the upper jaw, succeeded by three tuberculous true molars. In the lower jaw there are four false molars on each side, followed by a laniary and tuberculous molar.

The toes are five on each foot, furnished underneath with thick tubercles; the claws are long, sharp, powerful, and fitted for digging; on the palm both of the fore and hind feet there are five distinct elastic pads, or

* Προκυων, from Προ, before, and κυων, a dog.

† See Penny Mag., No. 306.

tubercles; one at the base of the little toe, one at the origin of the thumb, one near the second toe, one at the base of the two larger toes, and one towards the wrist, or heel.

Though incapable of grasping objects with its paws, the Racoon can hold its food between them pressed together, in doing which it usually sits upon its haunches like a bear, and in this attitude it very often feeds. Azara indeed informs us that its Paraguay name, Agouarapopé, alludes to the inflexibility of its paws, meaning "The fox with the stretched hand." "In fact," he adds, "the forefoot of this animal is very open, and has the toes much separated, so that they cannot be made to grasp, having a much greater depth than breadth; nevertheless it makes use of its two forefeet, but simultaneously, and without folding the toes, when it wishes to carry food to its mouth." The tail is long, full, and bushy.

Of the senses of this animal, that of smell is the most developed, and is very acute: the eyes, though the pupil is round, are better adapted for twilight or night than for the glare of day; indeed, a strong light distresses and confuses these animals exceedingly. In its natural state, in fact, the Racoon is nocturnal, and it is most probably from the circumstance of the eyes being incapable of sustaining day-light, that blindness from cataract (opacity of the lens) is so common in these animals in a state of captivity, when they are liable to be roused up, and are often kept awake during the whole or greater part of the day.

Buffon, in speaking of the localities tenanted by the Racoon, says, "This animal is originally from the southern regions of America; it is not found in the Old World; at least, travellers who have spoken of the animals of Africa and the East Indies, make no mention of it. It is, on the contrary, very common in the warm climates of America, and especially in Jamaica, where it inhabits the mountains, whence it descends to feed upon the sugar-canes. *It is not found in Canada*, nor in the other northern portions of this continent; nevertheless, it does not greatly fear the cold; M. Klein brought up one at Dantzick, and that which we had has passed a whole night with its feet locked up in the ice without experiencing any ill effects." As respects the Racoon not inhabiting Canada, Buffon is most certainly wrong. It is even eaten in Canada, as we are positively informed by a gentleman who has seen it brought to the table. Dr. Richardson informs us that the Racoon "inhabits the southern parts of the fur districts, being found as far north as Red River, in lat. 50°, from which quarter about one hundred skins are procured by the Hudson's Bay Company. If there is no mistake as to the identity of this species, the Racoon extends farther north on the shores of the Pacific than it does on the eastern side of the Rocky Mountains. Dixon and Portlock obtained cloaks of Racoon skins from the natives of Cook's river, in lat. 60°; and skins, supposed to be those of the Racoon, were also seen at Nootka Sound by Captain Cook. Lewis and Clarke expressly state that the Racoon, at the mouth of the Columbia, is the same with the animal so common in the United States." To this Dr. Richardson adds, "its flesh, when fed on vegetables, is reported to be good."

Nocturnal in its habits, the Racoon sleeps in its retreat during the day, rolled up in the form of a ball, with the head placed between the thighs. As evening sets in it begins its prowl for food. Roots, succulent vegetable matters, insects, worms, birds, and their eggs, constitute its diet. In search of the latter it climbs trees, ascending and descending with remarkable dexterity: it is said to kill birds like the polecat, first biting off the head, and then sucking out the blood. Oysters are among its favourite articles of diet; and for the sake of obtaining them it frequents the swampy borders of the sea, places which it prefers even to the woods, as is noticed by Azara, who contends that Buffon is in error in stating it to be an inhabitant of the mountains or elevated localities. Of the fondness of the Racoon for oysters, and of its dexterity in opening, the writer has been a witness. Some years since he tried a tame Racoon with several of these "shell-fish," as they are popularly called, which it greedily devoured. Its first action was to crush the hinge of the shell between its teeth, which done, it wrenched the two valves so far asunder as to enable it to scrape out the mollusk with its claws. In the description of a tame Racoon by M. Blanquart des Salines, we are informed "It opens oysters with wonderful skill; it is sufficient to break the hinge, its paws complete the work. It must have an excellent sense of touch. In this operation rarely does it avail itself of sight or smell; for instance, it passes the oyster under its hind paws, then without looking seeks by its hands the weakest place; it there digs in its claws, forces apart the valves, and tears out the fish in fragments, leaving nothing behind."

The gait of the Racoon on the ground is oblique, and when it moves quickly its mode of progression consists of a series of bounds, reminding us of the movements of the Lemurs, but with nothing of their grace and lightness. When taken young this animal is easily tamed, becomes playful, and is fond of being noticed and caressed, but is at the same time very capricious and easily offended; and to some persons, without any apparent cause, it will show from the first marked signs of hostility. When enraged or desirous of attacking a person, the Racoon advances, as we have often witnessed, with arched back and bristling hairs, and with its chin or under jaws close to the ground, uttering gruff sounds of displeasure. If once injured, it seldom forgives its enemy. M. Blanquart des Salines states that a servant had one day struck his racoon a few blows with a whip: "in vain did the man afterwards attempt a reconciliation, neither eggs, nor food most coveted by the animal, availed in pacifying it. At his approach it enters into a sort of fury; with sparkling eyes it darts at him, and utters loud cries of suffering. Whatever is presented to it at that time, it refuses until its enemy has disappeared. Its accents of anger are very singular; sometimes one might fancy them the whistling of the curlew, at others the hoarse bark of an old dog. If any one beats it, or if it is attacked by an animal which it thinks stronger than itself, it opposes no resistance; like a hedgehog, it conceals its head and its paws, and forms its body into a ball: no cry escapes it, and in this position it would suffer death." With much caprice there is no little cunning in the character of the Racoon, mixed with malice and a fondness for destruction. The writer above quoted informs us that the chain of his Racoon is sometimes broken, "and that liberty renders it insolent; it takes possession of a room, and will suffer no one to come near it; it is not without difficulty that it can be refettered. Since it has lived with me, its slavery has frequently been suspended. Without losing sight of it, I often allow it to walk with its chain, and every time a thousand little gambols express to me its gratitude. It is quite the contrary, however, when it escapes itself: it then rambles sometimes for three or four days together over the neighbouring roofs, and descends at night into the court-yards, enters the poultry roosts, strangles the fowls and eats their heads, attacking more especially the Guinea fowls. Its chain did not render it more gentle, but only more circumspect: it then employed artifice, and familiarized the poultry with it, permitting them to come and partake of its repast; and it was only after having inspired them with the greatest security, that it would seize a fowl and tear it to pieces. Some young cats have experienced from it the same sort of treatment."

The Racoon, as we have observed it in captivity, when fully roused is restless, inquisitive, and prying. It climbs with the greatest skill, in the same manner as a bear, as-

cending and descending a pole or stout branches fastened in its apartment, with the utmost freedom. All kinds of food are acceptable, and it is apt to become loaded with fat, which adds to its rotundity of contour. A great portion of the day, and chiefly the morning part, is passed in sleep, but not always so, for it is often restless all day, and full of animation. It is not however in captivity that we can judge of the natural habits of animals,—there is in such a condition no room for their exercise; their instincts have no stimulus to call them forth,—monotony oppresses their physical and mental nature, and leads to habits never acquired in a state of wild independence.

In size the Racoon is somewhat larger than a badger; its fur is of two kinds, a soft full under-coat, and an upper vest of long and rather coarse hairs. The general colour is dusky grey, the tint arising from each long hair being annulated with white and tipped with black. The face, cheeks, and throat, are white, with an oblique black dash across the face and surrounding the eyes: the tail has four or five dusky black rings; length about two feet, of which the tail is eight or nine inches.

INDUSTRY OF LONDON.

[From a Correspondent.]

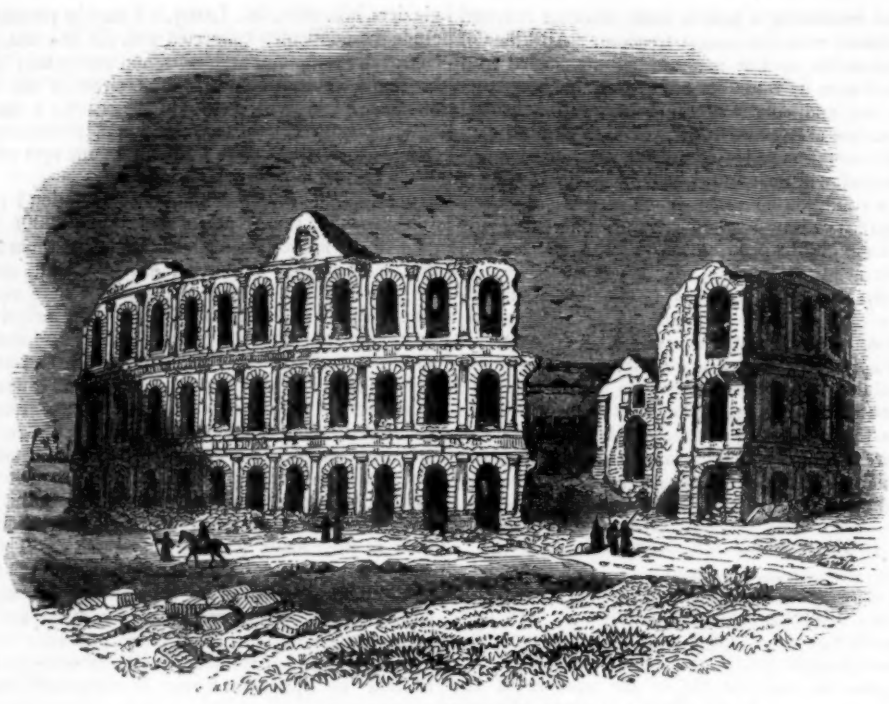
As in your 'Looking-Glass for London' a very brief sketch has been given of a few of its leading manufactures, I have thought the following more general description may not be unacceptable to the readers of the 'Penny Magazine.' I do not pretend to assert that my account embraces near the whole of the multifarious manufactures of this immense metropolis, yet I believe it will be found tolerably correct.

Although it cannot be said that London is strictly a manufacturing city, yet its productions are both extensive and various. In fact there is scarcely any branch of our national arts or manufactures (the cotton and woollen cloth trades alone excepted) which is not more or less carried on in London or its immediate vicinity, whilst in some particular trades it is the principal mart and enjoys an almost exclusive manufacture. As the silk trade of Spitalfields, the breweries, and the manufactures of the Borough (including Bermondsey) have been already described, I shall commence with the large and populous parish of Clerkenwell, which is the principal seat of the clock and watch trades. Here in close compact are congregated workmen in all the various ramifications of those important businesses, movement makers, case-makers, engravers, enamellers, finishers, &c. Clerkenwell also abounds in jewellers, gold and silversmiths, and japanners. Next, the east end or port of London teems with all the various arts and manufactures connected with its shipping trade or commerce. Ship-building, extensive cooperages, saw-mills, iron-foundries, iron chain-cable and anchor works, ropeyards, millwrights, engineers, &c., many of these works on a scale of gigantic magnitude. The London distilleries are probably unequalled in this or any other country. In Long Acre and its tributary streets and lanes lies the great mart for carriage and coach building, although many makers may be found dispersed nearly all over London. Independently of the trades already enumerated, the metropolis abounds with cabinet-makers and upholsterers, brass-founders and finishers, copper-smiths, tin-plate workers, iron-founders and smiths of every description; carvers, gilders, gold-beaters, glass-workers, lamp-makers, paper-stainers, and musical instrument makers. In piano-forte making one house alone is known to employ from 500 to 600 workmen. Add to these gun and military accoutrement makers, thousands of tailors, shoemakers, printers, and bookbinders; and again the host of artisans connected with the building trade, carpenters, joiners, bricklayers, masons, plasterers, house-smiths, painters, plumbers, glaziers, labourers, &c. Lastly, if I may be permitted to include the gentlemen connected with the fine arts, painters, engravers, sculptors, architects, and surveyors; there will be found concentrated within a circle of six miles in diameter, (taking St. Paul's as the centre,) a mass of intelligent skill, active enterprize, and productive labour, such as was never before collected on one spot on the face of the habitable globe.

It appears to me, from the best calculation I have been able to make, that a sum of at least 200,000*l.* is weekly paid in the metropolis for labour alone, without including the amount paid to porters, draymen, and servants of every description. Some of the trades here enumerated are supplied with articles from the principal country manufacturing districts in the crude or unfinished state, on account of the lower price of labour and the cheapness of coal in these districts. Amongst them may be mentioned, watch-springs and movements from Lancashire, forged cutlery and saw-plates from Sheffield, coach-springs, gun-locks and gun-barrels from Staffordshire, &c., which receive their finish from the London manufacturer. Workmen's wages, generally speaking, may be stated at full 25 per cent. higher in and about London than in the distant parts of the country. This circumstance draws a number of artisans of every class to London, others are drawn to *Town* (as it is emphatically called) by the hope of employment or of improving themselves in their different mechanical pursuits; some return again after a time, but many remain and settle permanently, so that the operative labour is continually increasing.

The art of educating requires skill in fostering a love of mental activity and a desire of knowledge. The Self-Instructor must obey the impulse of the desire already formed. Under guidance of a tutor we may have the advantage of commencing no study till we are versed in introductory subjects sufficiently to prevent our being discouraged by insurmountable obstacles. When teaching ourselves, we are often impelled to plunge at once into matters which we afterwards find require us to enter upon the study of elementary truths, and which sometimes present difficulties that compel us to abandon, or at least postpone for a time, the object of our investigation. The real friend to the intellectual progress of his fellow-men will be careful to bear in mind this difference, as a guard against any disposition to discourage the premature efforts of autodidactic students, and still more against the injustice of sneering at an apparent fickleness. An eminent linguist and biblical scholar yet living conferred on the author, in his boyhood, an invaluable obligation, by encouraging him to disdain the difficulties by which classical studies have been encumbered. By saying, "Two rules, *Begin*, and *Keep on*, will be sufficient to enable you to learn any language," did he, whose reputation, then extensive, has since procured the well-earned honours of learning, cheer the drooping spirits of a young stranger. With much delight did the author later in life recognise, in his unknown benefactor, the Cambridge Professor of Arabic, the Rev. S. Lee.—*Rev. J. Hambleton's Lecture on Self-Instruction.*

Going to bed in India.—The process of getting into bed in India is one requiring great dexterity, and not a little scientific engineering. As the curtains are carefully tucked in close under the mattress all round, you must decide at what part of the bed you choose to make your entry. Having surveyed the ground, and clearly made up your mind on this point, you take in your right hand a kind of brush, or switch, generally made of a horse's tail; or if you be tolerably expert, a towel may answer the purpose. With your left hand you then seize that part of the skirt of the curtain which is thrust under the bedding at the place you intend to enter, and by the light of the cocoa-nut oil lamp (which burns on the floor of every bedroom in Hindostan), you first drive away the mosquitoes from your immediate neighbourhood, by whisking round your horsetail. You next promptly form an opening, not a hair's breadth larger than your own person, into which you leap, like harlequin through a hoop; with all the speed of intense fear, you close up the gap through which you have shot yourself into your sleeping quarters.—*Hall's Fragments.*



[Roman Amphitheatre at El-gem.]

TUNIS AND TRIPOLI.

(Extracts from the Diary of the Rev C. F. Ewald. Continued from p. 495 of the preceding Volume.)

Sfax.—Along the shores of the Mediterranean there is probably no town of which the situation is so fine, or the environs so beautiful as Sfax. Its lofty walls rise immediately from the sea; they enclose 1200 large, and 2400 smaller buildings; and if we compute according to this number of houses, and the multitudes which throng the streets, we may estimate the Mahometan population at ten or twelve thousand. Sfax is well fortified, and the walls are defended by cannon, but I could never perceive any garrison. The castle is inhabited by an Aga and a few soldiers, who are here called Suavi, and are still habited in the old Turkish costume, while those in Tunis, and other places have been re-organized more than six years ago, according to the European system of military dress and manœuvres, and are called Nazam.

The harbour might easily be restored at a trifling expense; it is now so choaked with mud and brushwood that only small vessels are able to come up to the town; those of large draught being obliged to cast anchor two miles from the town. The streets are good, sometimes paved, and the houses, which present a fine appearance, are kept in excellent repair. With these recommendations it would be a pleasure to walk about the town, were it not, as throughout the whole of Barbary, loaded with filth and rubbish of every description, and it has become a matter almost of necessity with the Mohammedans on the north coast of Africa to see their streets in this condition. It does not contain any remarkable buildings—there is one very large mosque belonging to the Malakian sect. In no other place have I met with so many places of refuge for criminals—and this privilege is confined not merely to various chapels of saints, but whole districts, which have been given to the chapels, enjoy similar rights of sanctuary. As soon as an offender has reached one of these districts he is quite secure.

Sfax has some large and rich markets where inland productions and European manufactures are sold; they are particularly frequented by caravans from Gadamas for the purpose of disposing of the various produce which they bring from the interior of Africa, such as gold-dust, ivory, senna-leaves, ostrich-feathers, slaves, &c. Their purchases consist of glass beads, looking-glasses, knives, scissors, paper, &c. The merchants of Gadamas have the peculiar custom of not delivering their goods, gold-dust, for example, till the value has been paid down to them in silver, as they will not take gold coin.

It is remarkable that none but Sfaxias, or natives, are allowed to live in the town. No stranger, not even an Arabian or Bedouin, may possess a house within the jurisdiction of the town. Persons from Tunis, Tripoli, or any other Mohammedan town who wish to settle here, are obliged to erect their dwellings out of the town. The inhabitants of Sfax are all without any exception wealthy, there is no such thing as a poor Sfaxia. Every one has a fine country-house and garden out of the town, where he passes the six fine months of the year with the whole of his family; and it is an extremely interesting sight to repair to the gates in the cool of the evening at this season of the year. Groups of persons of all ages are seen hastening to the beautiful gardens which commence about a quarter of a league from the town, and form a crescent, which, in its longest diameter, measures 12 miles, in which space are 6000 gardens. The fertility of the soil is extraordinary; apples, pears, grapes, figs, pomegranates, apricots, peaches, almonds, citrons, plums, mulberries, and various other fruits of a southern climate flourish in the gardens of Sfax. Very little attention is paid to the cultivation of vegetables, to which the Moors are not partial—the potatoe is not known along the whole coast of North Africa, which obliges the Europeans to receive their supplies from Malta. Cucumbers and onions are grown in great abundance; corn, particularly rye and barley, is much cultivated, also peas and lentils, which are larger, and the latter redder than those of Europe. The breed of cattle are on the whole good, though inferior to the European; sheep, both the common and long-tailed, are met with in immense flocks; also horses, camels, and mules. Game of every description abounds here; beasts of prey have disappeared, though they are said to be still found in the interior of

the country. As the chase is free to all, it forms one of the greatest amusements of the Europeans settled here; they are often absent for weeks together on the chase, and return richly laden with booty. The people of Sfax are very fond of fishing; for there is an abundance of fish on the coast, and they are caught by a very simple method. Twigs and oziers are woven together, and being fixed a certain distance in the sea, a net is fastened at one end. As soon as the animal finds itself impeded by the wicker-work, it endeavours to find an open outlet, therefore swims forward and hastes towards the net. In this way the net is filled twice a-day in general.

In the harvest season, the barley and rye ripen simultaneously. Each person conveys his sheaves in front of the town-gate, where a large open space is reserved for the purpose; he here selects a particular spot for his sheaves, and piles them up upon one another in proportion as he brings them in from his ground. As soon as all have finished their operations and completed their heap, the Kaid of the town makes his appearance and sets a value on each heap; crying out, This heap has to give one hundred measures!—yonder five hundred!—and so forth. No one is allowed to appeal against the officer's valuation. It is the quantum of tythe payable to the lord of the land. The people set about threshing the grain out immediately afterwards, and the method they use is the threshing-carriages of ancient times. These carriages are constructed low for barley, and furnished with four rollers, every roller having six or eight iron shears: the oxen are now yoked on and the driver takes his seat. The sheaves have been previously disposed in a circle; the carriage is driven over them until the whole are beaten and bruised as short and small as possible. The instrument employed for threshing out the rye is a somewhat thick board, four feet long and two broad. Pieces of iron and flint are driven into the board itself. An ox or ass is roped to it, and the driver, standing upon the board, sets about his task and bruises the sheaves. By these simple appliances a large quantity of grain is threshed in a very short space of time. In order to cleanse it from the chaff, people are constantly at work stirring the beaten grain about with long forks, during which operation the wind blows the chaff away and the seed falls to the ground. The grain is then put into sacks, laid on camels' backs, and carried to the granary, which usually lies underground. The straw is collected carefully, and borne to the place of its deposit by the same most useful animal. Less than ten days are sufficient to gather in the harvest and thresh the crops out. Whilst watching these operations, I had before me a new and perfect comment on Holy Scripture:—"Thus saith the Lord; For three transgressions of Damascus, and for four, I will not turn away the punishment thereof; because they have threshed Gilead with threshing instruments of iron." (Amos, i. 3.) "Arise and thresh, O daughter of Zion; for I will make thine horn iron;" &c. (Micah, iv. 13.) "And Ephraim is as an heifer that is taught, and loveth to tread out the corn," (Hosea, x. 11); and many other similar passages. When I told the work-people how corn was threshed in Europe, they were much astonished, and observed, that the Europeans could not grow much corn, inasmuch as they chose so toilsome a mode of threshing.

There are about two hundred Jewish families in Sfax, consisting of about two thousand persons. They reside in a suburb of their own, which is separated from the other parts of the town by a wall and gate. Like their other brethren on the coast of Northern Africa, they are occupied in mechanical and trading pursuits. They have two large synagogues, where they say their prayers, teach their children, and study the Talmud. I met with but very few rich Jews in the place: most of them gaining just as much as suffices to provide them with the necessaries of life. The whole Jewish population do not pay more than eighty piastres a-year to the sovereign. It is remarkable, that the Jews of Tunis, Tripoli, and Algiers are peculiarly distinguished by the covering of their heads. The Algerine Jew binds a black silk cloth round it; the Tunisian wears a black turban; and the Tripolitan a silk parti-coloured turban. The wives of the Tripolitan Jews bind a ribbon round their brows, from which pieces of money are pendant; the size and number of the latter being indicative of their husbands' circumstances in life; nay, the woman in this way frequently displays the whole pecuniary substance of her lord on her brow.

No Christians lived here until within the last ten years: but now, besides an English consul, who came here four years ago, there are a French and a Sardinian consul. There is a host of Maltese, who spread in all directions like weeds, and bring contempt and disgrace on the very name of Christians. All the Christians are compelled to reside in the Jewish quarter, with the sole exception of the English agent, who is allowed to live in the town as a special mark of favour. The Europeans have all of them risen to affluence in a short time. Some, I know, who were not owners of a single piastre four years ago, and have acquired property enough to live at their ease in any town of Europe. The whole of the Christians in the place took, however, a lively interest in the object of my mission, and aided me on every occasion, although there was but one of them who did not belong to the Roman Catholic persuasion. They were very glad to accept of Bibles.

The Mohammedans of Sfax are accounted a very learned race, and I had several conversations with them, as well as gave them no small number of publications in Arabic. I did not succeed, however, in discovering wherein their boasted learning consisted. One of their sages, who passed for an uncommonly well read person, observed to me, when we were discoursing on astronomy, that "there are *Seven Heavens*, one raised above another. Each of these heavens has its own sun, and these seven suns are what the Christians erroneously conceive to be seven planets. Above the seventh heaven lies God's seat, and above this his bed." He thrust in the latter, upon my observing to him, that there were eleven planets.

The heat in the harvest season is intense, and I am told will become more so as I draw towards the south. Sometimes the thermometer stands at 28° Reaumur 95° Fahrenheit); but the air is somewhat freshened by the proximity of the sea. There is one thing, however, more to be dreaded than the heat; and this is, the scorpions, who seem to have chosen Sfax for their house and home. The greatest danger to be apprehended from them is during the months of July and August. Yesterday a child, who was playing in an adjacent garden, was stung by one of them and died in a few hours. But they do not attack persons when asleep, or lying motionless; as soon as they move, however, the insect instantly stings them. The best remedy is immediately to cut away the wounded part with a razor, and rub oil into it for sometime afterwards. The pain is said to cease within the next twenty-four hours; and then no dangerous effects are to be feared.

El-gem, the Tisdras or Tysdrus of the antients, contains the ruins of an amphitheatre, said to be one of the finest specimens of Roman art and luxury, and was built by Gordianus, who was proclaimed emperor in its vicinity. It consisted formerly of four successive rows of columns, and sixty-four arcades. The upper tier is now nearly fallen down, the lower ones are in good preservation. From the basis to the commencement of the fourth gallery are 90 feet, and if we reckon the height of the columns at 15 feet, the elevation of the whole must have been 105 feet. The inner area is 300 feet in length and 200 in breadth; in the centre is a well, now however quite choaked up. The ruins of this amphitheatre retain all the fresh appearance of a recent erection. About a century ago one of the Beys blew up four of the arcades because the

Arabs had taken refuge within it during an insurrection and defended themselves with great bravery. The width of these arcades is 105 feet and the whole circumference of the building is about 1570. In a corner of the amphitheatre lies the statue of a Venus which has lost its head; on the building itself are the head of a Ram and of a Man. The contrast between this gigantic structure and the wretched Arabian huts around cannot be described. I never beheld more miserable huts or more destitute Bedouins. The environs abound in fragments of marble columns, buildings, cisterns, &c. The town was about a quarter of a league distant, and still contains numerous ruins. I remarked a marble statue of gigantic size, but as the fanaticism of the Arabs destroys every object of art, the head was broken off.

[Our view of this Amphitheatre, given at p. 12, is taken from a print in the part already published of Mr. Ewald's Diary.]

THE SILK-WORKS OF BRIANZA.

[From a Correspondent.]

THE nurture of the silk-worm and the preparatory manufacture of its product form a material part of the annual employment of female peasants in the northern provinces of Italy. While husbands, sons, and brothers are toiling in the parching sunshine to win their scanty maintenance, the elder women in the darkened *bigattière* or feeding-houses, tend the ripening worm under the occasional supervision of the farm bailiff, and the younger wives and daughters in the *filanda* or factory make the the fragile insects' labour available to human luxury.

The whole course of existence of this apparently insignificant but really important creature, from the moment of chipping its diminutive egg-shell, through the gradations of worm and chrysalis, to its final development and death as a mealy-winged moth, has been already fully traced in former numbers of the 'Penny Magazine.'* The present memoranda date from the animal's destruction in its third stage of pupa or chrysalis; in other words, the conversion of its envelop or cocoon into silk.

The mode of effecting this is essentially the same all over Italy; some differences however of climate, culture, and spinning produce the varieties of silk known by several provincial names in the London market. The nomenclature, as affording little information to a reader uninitiated in that particular branch of commerce, may be passed over with this remark, that it is rather indicative of the abode of the exporter, than of its quality or place of production, such as Milan, Bergamo, Modena, &c., which, though only names of towns, comprise each a wide extent of supply. The following observations apply more particularly to the silk termed 'Milan,' though produced in Brianza, a hilly province, distant about twenty miles from that city, and forming the gradation between the plains of Lombardy and the Alpine barriers of Switzerland. It was here that, domesticated for some months with an agricultural family, the writer had ample opportunity of noting every part of the process of fabrication.

The route from Milan to Brianza lies through an expanse of fertility and flatness. Starting by daybreak the major part of our drive was over before the heat had become oppressive: after pausing at a village where rows of greasy booths proclaimed that a fair was holding for cheese and oil, we resumed our journey, and about four o'clock reached our destination in the village of Besana. Here, on entering the saloon or living-room of our entertainer, we found ourselves plunged at once into the full activity of the filature. At a long table heaped up with cocoons, sat several barefooted women and full grown girls assorting them, and tearing from each the loose filaments thrown out by the worm as a foundation for his nest; this substance, when carded, forms what is called spun silk, formerly much used in England for shawls and hosiery, but now, I believe, more largely consumed for those hats known under the name of "gossamer," which from their economy and appearance have nearly superseded beaver among the middling and working population of London. The *doppioni* or cocoons jointly produced by two worms, (the ill-shaped or otherwise defective being all thrown aside,) the perfect ones, forming the greatest part, are then ready to undergo the processes of killing and spinning.

The first is accomplished by exposing the imprisoned grub for a sufficient time to confined steam of a high temperature, or to the dry heat of an oven. The necessity for doing this is obvious, for as the cocoons when in quantity must be laid up in store to await their turn of spinning, were it omitted, the conversion of the chrysalis to a moth would take place, and the silk be destroyed by its emerging, which it does by ejecting a highly corrosive liquid that instantly dissolves its bonds sufficiently to allow its passage through them without embarrassment.

The spinning is generally carried on out of doors, in a large yard furnished with piazzas on one or more sides. Beneath these are erected ranges of low brick furnaces, each containing on the top, near one edge, an open shallow oval copper, and having secured to it, by the bungling application of the weight of a large block of granite, a rudely-formed yet most effective wooden reel. Wood fires are lighted in the furnaces, the water in the coppers is brought to nearly boiling heat, and the spinner seats herself with her left side against the furnace, twisting herself round towards the copper; she is protected from the scorching brick-work by a thick wooden guard; before her is the reel in charge of an assistant, who thus serves her apprenticeship, with occasional snatches of practice, to the art of spinning, which is of course the most important part. Other assistants, male and female, attend to the fires, bring water, &c. From a basket on her left hand, the spinner casts several handfuls of cocoons into the boiling water, and agitates them with a small whisk, until the ends attach themselves to it, and she is enabled to select the requisite number of fine filaments, varying from three to five, wherewith she forms her thread: these are thrust altogether through a hole in a flat thin bar of iron running the whole width of the reel, at about six inches above the copper: there are four equidistant holes in the iron, each one of which is filled in the same manner; the two left-hand parcels are now pulled through the holes by the assistant, twisted together, then again separated, and each thread passed over one of four wire hooks fixed at distances corresponding to the holes in the iron, in a piece of wood parallel to it and to the axis of the reel, then the threads are attached to the reel: the same is done with the two right-hand parcels. The assistant makes the reel revolve with a velocity that appears more the result of strong mechanical appliance than of the turning of a simple winch by hand: the threads wind rapidly off from the softened cocoons, and passing through the twisted crossings, are there combined, twisted, compressed, and partially dried ere they reach the reel, whereon they gradually form four thick skeins. A reciprocating motion is given by a simple contrivance to the wooden rod with the hooks, which disposes the threads in a reticulated position on the reel, and facilitates the subsequent unwinding. The coppers are kept just below boiling by occasionally dashing in cold water from a basin conveniently placed. As the cocoons are exhausted, fresh ones are added; and herein lies the mystery and difficulty of the art: the beauty of the silk depending greatly on its evenness of size, the point is to keep the same number of cocoons always running to-

* See Nos. 47, 191, 215, and 292.

gether; but as the moisture renders the delicate filaments gluey, it sticks with some tenacity to the spinner's finger, and it is only by a peculiar and practised sleight that it can be jerked off and transferred to the running thread, an operation that an unexperienced hand finds it nearly impossible to perform.

This labour is continued from morning until noon, when the skeins being loosened and pulled half round on the reels, these are detached from the machinery, and with the silk on them, set to dry in the shade. The women then take their scanty meal of heavy yellow maize bread, thin vegetable soup, and thinner wine. This ended, labour recommences, but with a change of hands; the tyro assistants take their places at the coppers, and for a very short time attempt to make silk, while the spinners turn the reels and give verbal instructions in the art. Awkwardness generally prevails in various degrees; every failure calls forth the ridicule of the more experienced, and laughter and noise prevail. This soon ends however, for the pupils are deposed from the seat of dignity and return to the wheels, when matters proceed as before, with occasional cessations, and about sunset the day's work ceases.

Silk-making being confined to particular portions of the year, it does not, like the manufactures of England, form the sole occupation of those engaged in it. It divides their time with agricultural pursuits, and its appliances share the premises with farming operations. A stout hind may be threshing out or dressing wheat, while another is splitting wood or drawing water for the filanda, and fowls are feeding from the putrifying heaps of chrysalides thrown out by the workmen. Many of these wretched birds get mutilated in their feet by entangling themselves with the silk that is mixed with their food: after some ineffectual struggles to break their bonds, the fine wiry filaments work into the joints and gradually amputate from one or more toes to the whole foot, as the case may be. It is really melancholy to see them hopping, hobbling, and staggering about on their stumps. Their eggs and flesh are strongly tainted by the dear-earned offal they devour, and are never consumed on the farm where produced, but sent to distant markets to be devoured by unwary purchasers.

Such of the girls and women as come from a distance are provided with beds. Their sleeping apartment at our factory presented a curious specimen of accommodation. A dark windowless room, of about fifteen feet square, contained not less than ten beds, or rather ten shapeless heaps of litter, strown down side by side on an earthern floor, as far from equality in its surface as a country cross-road. Previously to retiring to their rest, a portion of the spare time was given to a devotional procession to the burial-ground, where a hymn was chanted in chorus to the repose of the spirits of the dead; then back to the factory-yard to romp, to gossip, or to sing. Their vocal performances mostly consisted of extemporaneous poetical attacks on each other's personal defects or peculiarities, which were frequently met by repartees not devoid of native wit and piquancy. Each doggrel couplet is sung with a burthen of "Too-roo-too-tela, Too-roo-too-ta," which gives a strange monotonous character to the whole performance.

Cheerfulness and good temper, rather than beauty, are the characteristics of these females, and, indeed, of the peasantry of Brianza in general. The men, though robust, are short and rough-featured; the women, for the most part, small, flat, square-shouldered figures, with dark sharp-pointed visages, animated, it is true, with the speaking eye of Italy. Their throats are frequently swelled and disfigured by full-grown or incipient goitres, there termed *gozzo*, and known here under the name of the "Derbyshire neck." These excrescences or tumours infest the human system in most mountainous or stony districts of Europe, in Savoy, in Lombardy, in England. They are vulgarly supposed the result of drinking snow-water, but more rationally attributed to the use of water holding in solution large quantities of stony matter. Whatever the cause, it is a fact, that during my stay in Brianza I do not recollect an instance of the complaint among any but the poorer classes. I should infer hence that hardships and low living have some share in producing the deformity.

By making use of a small reel of the construction attempted to be described, and provided with a water-pan and lamp, silk of our English growth may be so spun as to bear competition with some of the middling qualities produced in Italy; and my own observations convince me that the worms might be here fed and reared with entire success and sufficient economy, despite the peculiarities of our climate, provided it were desirable to aid the supply of our manufactures by producing a part of the raw material at home. This, of course, it would not be. We can buy silk cheaper and better from countries whose climate is more favourable to its growth, and whose labour is paid at a lower rate.

CHARACTER OF MODERN KNOWLEDGE, WITH HINTS FOR ITS IMPROVEMENT.

The present times are, without doubt, distinguished for the diffusion of knowledge amongst all ranks of the people. Whatever may be the advantages which we are already reaping from the progress of enlightenment, it is not to be expected that so great a change should be altogether free from the inconveniences and evils which seem necessarily to attend all changes. The consistent upholder of things as they are, to the exclusion of all alteration, is wont to enumerate evils arising from the increasing spread of knowledge, sufficient in his estimation far to overbalance all its advantages. It is the part of the prudent and judicious advocate of improvement seriously to consider such inconveniences as may arise, and carefully to provide for their mitigation at least, if they do not admit of prevention. Of the numerous evils alleged as consequences of modern attempts to spread abroad those stores of information hitherto appropriated by the few, one of the most serious, and best worthy of consideration, appears to us to be the supposed superficial character of modern, as contrasted with antient knowledge. In our desire to extend our acquaintance with science in all its departments, we are said to leave them all incomplete, thoroughly mastering none: as the stream of knowledge is diffused, it is maintained that it loses its depth.

In considering this subject, we think it desirable to keep in view the principle, that there are two objects to be pursued in relation to the cultivation of knowledge:—the diffusion, as widely as possible, of the stores of information already amassed; and the acquisition of still further stores, by the diligent working of the veins already opened, and the ardent search after the yet hidden treasures of science. Each of these objects is good and great: the one concerns all men, of whatever station or capacity; for general information is now expected from all: the other more directly interests the few whose talents and leisure seem to point them out for the honoured instruments of the advancement of science, though, as will be shown, the many may lend an humble but effectual aid to the great work. Is there then any natural or necessary incompatibility between these two objects?

The diffusion of knowledge requires the popularizing of previously established principles; the exhibiting of information in easy and attractive forms. This process demands a peculiar kind of talent, very distinct from that of the original discoverer of truth; and this popularizing ability the present times have supplied to an unprecedented extent. The great mass of modern lite-

rature consists of the exhibition, in a popular form, of previously established facts and principles. The wide diffusion of these stores evidently does not diminish their amount: how does it affect their probable increase? It seems natural to suppose that the wide cultivation of intellectual tastes, and the encouragement of scientific pursuits, will excite in numberless minds those faculties of observation and reflection from which we must look for new discoveries, and the carrying forward of the imperfect theories of former students. Thus the diffusion of knowledge tends to deepen the stream, not to make it shallow.

We would not however close our eyes to a danger which besets the uninformed, particularly the young, in the swarms of attractive introductions to literature, science, and art, and the numerous pleasing miscellanies which teem from the press for their particular benefit. From the frequent use of these, the child of quick parts and inquiring disposition very early acquires a store of superficial information which dazzles the ignorant, and by the consequent praises of the injudicious, puffs up the young philosopher with a very unphilosophic conceit. We have frequently been highly amused with children of the present generation whose tongues have been so early accustomed to the hard words of science, that the -ologies, -alogies, and -atics, have been as familiar as the names of their toys or their play-fellows, and who have astonished their grandmothers with expositions of scientific principles which, in their generation, were the puzzles of the learned. The little people naturally fancy they have mastered sciences which their elders never thought of acquiring. Never, perhaps, was it easier to find the verification of Young's sarcastic lines—

> "When young indeed,
> In full content we sometimes nobly rest,
> Unanxious for ourselves; and only wish,
> As duteous sons, our fathers were more wise."

In young children, however, we are inclined to look upon this conceit as a very venial fault. It may be regarded as the symptom, though in an unhealthy degree, of a love of distinction, which by judicious treatment may render him who exhibits it useful and eminent in the pursuit of knowledge. Nor is there any fault more easily, more naturally, and necessarily cured by the advance of time. It is engendered in the narrow sphere of early life: as the circle enlarges the young aspirant is brought into contact with others of his own age, his equals or superiors in knowledge, and he is speedily taught his proper standing, and learns to correct his false estimate of his own ability by the less favourable view of his neighbours.

In the case of the uninformed of riper years, the vanity arising from the sudden acquisition of superficial knowledge, is perhaps a more serious evil, and far more difficult to counteract. Yet, in persons of all ages, there can be no doubt which character to prefer,—that of the inquirer with his mind awakened to the charms of knowledge, though his attainments be superficial, and his heart elated with vanity—or that of the hopelessly ignorant, walking blindfold through creation, heedless of the wonders by which he is surrounded. If in the attempt to substitute knowledge for ignorance throughout the mass of mankind we encounter such evils, creating here and there faults akin to virtues, this is no solid ground of discouragement, especially when we remember that in their very nature such evils are but temporary. The vanity of the superficially informed man, for instance, arises solely from his comparison of himself with his uninformed neighbours: spread throughout them all the same amount of knowledge, and his elevation ceases. The savage who had picked up a hat on the sea-shore, and was elated by his European dignity above his neighbours, was reduced to the condition of one member of a hatted aristocracy by the arrival of a ship which supplied to a limited extent the demand for the new head-dress. Continue the intercourse, and the hat ceases to be even an aristocratic distinction: all are covered, and none are proud of their covering.

Thus it appears that the evil is but temporary in both cases: the vanity arising from superficial knowledge in the young dies out as they grow older—in the uninformed of riper years, by the advance of their neighbours to their own standing. In the meantime, however, it may not be amiss to suggest one or two considerations which may tend to accelerate the process.

It is the abuse of the amusing and attractive introductions to knowledge, so abundantly supplied in modern times, which creates the vanity which we lament. They were intended as introductions merely, to excite a curiosity which should seek its gratification in a thorough investigation of the subject thus brought before the reader. It is the use of them by themselves, the resting in the picture-alphabet instead of advancing to the intellectual stores which lie beyond, which forms the superficial character whence vanity springs up as from its native soil.

By the judicious use of these elementary books, the fault may be corrected. We would most earnestly impress on the attention of all readers the necessity of prosecuting further some one branch of knowledge to which they are introduced by their general reading. They will soon discover for what particular branch they are best fitted, by observing which it is that interests them most, and makes the deepest impression on their minds. This then, whatever it may be, let them set up as the main object of their study. This let them follow out in books of a deeper character than those elementary treatises which first discovered to them their leading taste. Let them not neglect to increase their general knowledge: but let them sedulously cultivate this particular branch. The first and most striking advantage of this course is, that it will be the more likely to lead to eminence in intellectual pursuits. The path to distinction is through the cultivation, in concentrated force, of some single branch of knowledge. But there is a more important advantage of the course we recommend. The thorough investigation of one chosen topic of inquiry is as favourable to humility as the superficial attention to all is to vanity. After long and diligent study, the inquirer begins to feel in some degree master of his subject; yet even here he sees before him in the race others whom his own experience teaches him how highly to respect. His supposed acquaintance with general knowledge, suffices at any rate to show him how wide is the field of science of which he has been cultivating but a corner. His general knowledge then unites with his especial scientific attainments to produce humility, that truest ornament and surest accompaniment of real knowledge. Knowledge produces in him its proper moral effects: it makes him not only wiser but better. As an individual, he will continue diligently to follow up the science of which he has acquired a portion: his acquisitions will give him self-respect, yet stimulate his desire for further advance. As a member of society, he will possess the inestimable qualities of a good learner, as well as a good teacher: he will be full of information on his favourite subject; yet ever ready in return to learn from others whose particular studies have fitted them likewise to instruct in their own department. The respect which he owes to them will be cheerfully paid, for it rests on the same foundation as that which he claims for himself; and intellectual activity will be gracefully united with mutual good-will.

*** The Office of the Society for the Diffusion of Useful Knowledge is at 59, Lincoln's Inn Fields.

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